Assessment of Extended E-S-Qual Model in an M-Commerce Setting

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Abstract

The research goal is to fill the current research gap by determining the service factors that influence M-commerce Apps customer satisfaction and loyalty in Malaysia by adopting e-service quality (e-SQ) model and relationship quality theories in the context of mobile commerce apps. A framework proposed by Zeithaml, et al., (2005) for e-service quality (e-SQ) and its extension is used to study the influence of service quality on customer satisfaction and loyalty in the context of M-commerce. The data is collected through administered online survey with sample of 152 respondent selected using convenience sampling in order to test the hypotheses of the proposed framework model. Confirmatory factor analysis (CFA), Structural Equation Modelling (SEM) as well as path analysis is carried out using AMOS 22. The results of this study show that, out of all service quality elements, only fulfilment has the highest significant influence on customer satisfaction, while privacy has the highest significant impact on customer loyalty. This also mean, adopting e-SQ model as it is for mobile businesses can be erroneous. This research is useful and has important implication for marketers, businesses that are looking to improve M-Commerce by understanding customer satisfaction and customer loyalty in relation with e-SQ among Malaysian working professionals. Academically, it uncovers need to investigate service quality factors specifically for mobile businesses.

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Cite this article: Dastane, O., Bin Md Jalal, M. I., & Selvar, K. (2018). Assessment of Extended E-S-Qual Model in an M-Commerce Setting. *International Journal of Management, Accounting and Economics, 5*(12), 923-954.

Introduction

Internet has changed the medium of spending from traditional shopping to online and then mobile shopping. Mobile shopping or its acronym M-Commerce has been shaping the life and experience of the customers. This sector has given an eye opener for several developing countries especially Malaysia in the last two years due to its double growth of revenue which has contributed to the GDP of the nation. The adoption of technology through mobile apps had enabled the M-Commerce sector to be reachable and efficient between Business-to-Consumer (B2C) processes. The growth of technologies devices such as smartphones, tablets couple together with mobile internet data as well as high speed broadband are helping increasing number of internet users' buying behaviour. Hence this new born phenomenon eventually leads to faster technology adoption of not being just as communication tools but more than that (Leea & Won, 2015). With the ability of downloading mobile applications, smartphone has become one of productive tools for social interactions, games and even became a shopping tool. Thus, M-Commerce is defining as a new born phenomenon and customer satisfaction is a new way of aspect to be weighed. According to Kim et al. (2007), M-Commerce has transformed today's business environment due to rapid adoption of the Internet and the adaptation of user with mobile devices. The increase of the M-Commerce industry in Malaysia is caused by the smartphone adoption and penetration in the country. According to Goi (2008), Malaysia has a potential to become front-runners for M-Commerce sector which expect to be driver for the world growth engineered by the government. With this advancement of technology, many businesses have started to adopt newer communication and information platforms in order to maintain and enhance their business performances right to their fingertips. Many retailers start shifting their business insight to M-Commerce using internet as a medium to conduct daily transactions to tap greater opportunities in global market with extremely low operational cost. Consumer also starts to shift their buying option from traditional shopping to M-Commerce by just using their smartphone (Haba et al., 2017).

Smartphone is regarded as highest owned internet access device among Malaysian internet users. This tremendous growth and greater dependence on mobile commerce in Malaysia market, makes virtual marketplace as a medium to formulate quality shopping experience in meeting customer expectation (Sebastianelli et al., 2007). Abdulghader et al. (2012) discussed that retaining customers in online shopping experience is the most challenging issue faced by any online retailer in Malaysia. Parasuraman et al. (2005) and Yang & Fang (2002) both had argued that low price is not the only critical determinants to the success of shopping online but service quality approaches are of importance. The most crucial factor in sustaining today's businesses is by providing the best service quality to the customer which leads to customer satisfaction, loyalty and profitability (Buttle,

1996; Sureshchandar et al., 2002). Alam & Yasin (2009) pinpoint two third of e-tailers service were unable to generate profitability. The main reason of this penniless gained from researchers is due to poor e-SQ (Kalia, 2013). Thus the intention of this research is to study how service quality can influence on customer satisfaction and loyalty for Malaysian M-Commerce consumer. In order to determine customer perceptions through service quality, we adopted the SERVQUAL model, which was first developed by (Zeithaml et al., 1988). Later on Parasuraman et al. (2005) had revise and improvise SERVQUAL to suits with online website service quality which referred as e-SQ which will be used in this study. This e-SQ model approach has been widely used in determine success or failure of electronic commerce application especially for online shopping experience. Most studies in e-SQ model, researches indicated that customer satisfaction and loyalty have strong correlation and this model had significantly and positively affected user perception (Parasuraman et al., 2005). Consequently, high scores in e-SQ element shall contribute to the customer retention and loyalty (Parasuraman et al., 2005). Thus, this fact makes it important for Malaysian M-Commerce to have a clear view on the e-SQ impacted on customer experience in order to stay competitive in current market.

Therefore, in sustaining and improving business performance in M-Commerce sector, every firm must embrace service quality in order to attain customer satisfaction and loyalty (Molla & Licker, 2001; Raghunath & Panga, 2013). Success in large economic returns is connected to result of customer satisfaction, loyalty and the quality of service served to customer (Churchill & Surprenant, 1982). The usage of electronic means such as smartphone in unique and commendable ways can lift up as well as increase overall satisfaction. Kalia (2013) have recognised several issues such as originality of product, fraud image, fake transaction, warranty policy, privacy and misconduct of delivery are some of the miseries faced by Malaysian consumer. Some dimensions of service quality also affect perceived value (Donni, et al., 2018; Haba & Dastane, 2018). Thus, governments and regulatory bodies should play a vital role towards e-retailers for reassurance of consumer safety. Some of service quality is acknowledged to be strategically important for companies with a mobile tools and web presence, as the increase in number of consumers are taking the plunge and entrancing with seller through (Collier & Bienstock, 2006). For that reason, this research is being carried out to test the significance of every service quality element influence towards customer retention. Thus the background and the motivation of the research area is to discover what are the dimensions and how prominence of e-SQ with its correlation with customer satisfaction and loyalty for M-Commerce targeted especially for working professionals in Malaysia. The objectives of this research are: To identify significant relationship between service efficiency and customer satisfaction, loyalty in M-Commerce among working professional in Malaysia. To identify significant relationship between service system availability and customer satisfaction, loyalty in M-Commerce among working professional in Malaysia. To identify significant relationship between service responsiveness and customer satisfaction, loyalty in M-Commerce among working professional in Malaysia. To identify significant relationship between fulfilment and customer satisfaction, loyalty in M-Commerce among working professional in Malaysia. To identify significant relationship between privacy and customer satisfaction, loyalty in M-Commerce among working professional in Malaysia.

Literature review

Definitions of Key Terms

Customer Satisfaction is defined as one of the main constructs for this study that fit with current M-Commerce environment. Churchill & Surprenant (1982) describe customer satisfaction as a combined outcome resulted from consumption experience with the product and services. Customer satisfaction can bring the definition of consumer's post evaluation of a purchased product or service after pre-purchase expectation (Kotler, 1991). According to (Tsan et al., 2013), satisfaction is derived from discrepency between perception and congnitive standard; expectation and desire. McKinney & Fatemeh (2002) defined expectation as customer pre-purchase belief of a product. Expectation also can be define as customer judgement of how manufactured goods fulfils and meet their needs and desire (Cadotte et al., 1987). While Zeithaml et al. (1988) elaborated perceived quality as customer judgement about overall performance and superiority of the product, customer Loyalty. From attitudinal perspective, customer loyalty has been perceived as the desire to continue relationship with a service provider (Raghunath & Panga, 2013). From behavioral perspective, customer loyalty is the repeat patronage, which is the proportion of number of times a buyer purchases a product or a service in comparison with the total number of purchases made by the buyer in that same category. Services quality can be described as delivering the needs and desires of customers and address customer request in meeting customer (Krey et at., 2014). According to DeLone & Mclean (2003), service quality is a fineness level of hope and act as a controller for level of excellence in meeting customer desire. The ultimate goal in meeting a customer expectation in today's business is the reliability of products as well as quality of services served resulted to customer satisfaction (Krey et at., 2014).

Critical review of theories

Traditional Service Quality (SERVQUAL) Model: Many marketing researchers adopted this theory as the foundation for measuring service quality Zeithaml et al. (1988). One of the first service quality models, called SERVQUAL was constructed by Zeithaml et al. (1988), which to access and measured service quality. SERVQUAL model was divided to five dimensions; tangibles, responsiveness, reliability, assurance, and empathy. it is the most widely used model adopted to assess customer opportunities and sensitivies of service quality (Tsan et al., 2013).

Table 1. Dimensions of Service Quality

Dimension	Definition
Reliability	Ability to perform the promised service dependably and accurately
Assurance	Employees' knowledge and country and their ability to inspire trust and confidence
Tangible	Appearance of physical facilities, equipment, personnel and communication materials
Empathy	Caring, individualized attention given to customers
Responsiveness	Willingness to help customers and provide prompt service

However SERVQUAL model face extensive criticism by several researchers because of the fact that five dimension is not universally applicable (Tsan et al., 2013). In addition, the model fails to address issue on established economic, statistical, and psychological theories (Buttle, 1996). In fact, the most significant criticism is the stability of dimensions and items across different industries (Stewart et al., 1998). Other criticisms include their failure to address outcomes of respondents instead of only focus on service delivery (Buttle, 1996). Recent research by (Parasuraman et al., 2005) also comment that SERVQUAL model is not well formed for online service quality. He suggested that SERVQUAL dimensions need be revised suiting to web-based service quality due to polarity of customer interaction with technology which is higher than traditional service. According to Miller et al. (2011) SERVQUAL fail to capture the true dimension of the service quality as may not be a universal set of service quality which relevant across all service industries. Few of researchers concern themselves with the validation of the SERVQUAL as measuring tool may expired at certain time (Nyeck et al., 2002).

Table 2. Combination of e-core and e-recovery concept

e-Core	Definitions
Efficiency	How convenient to find the website, how easy to find what customer need and the information about it within the website. It should not take more than necessary efforts to get this information
System Availability	Durable technical function of the site. These functions should always be functioning properly and available.
Fulfilment	Ability to deliver exactly what you have promised to the customer, such as availability of products, delivery time etc.
Privacy	Ensure the shopping data is well secured and no one without authority could check these information and the payment information are safely handled, no credit card information transferred to third party.
e-Recovery	Definitions
Responsiveness	Business already has information available about schemes or procedure for dealing the customer purchasing problems. Eg. Return policy and guarantees
Compensation	How to handle the financial issue when a return situation occurs
Contact	Availability of customer support cannel. May the customer contact a live customer service agent through online cannel, pone or other channels

Source: (Parasuraman et al., 2005)

Electronic Service Quality (e-SQ): Later, Parasuraman et al. (2005) built e-SQ theoretical model using electronic facet of service quality in which there are seven e-SQ approach or dimensions to be measured which is efficiency, reliability, fulfilment, privacy, responsiveness, compensation, and contact. These dimensions of E-SQ determined by previous researchers, including (DeLone & Mclean, 2003; Gronroos, 1984; Slu, 2003) have their origin in the Technology Acceptance Model (TAM) theory. Parasuraman et al. (2005) later on re-constructed e-SQ model with 11 dimensions which

influence the perceptions of the customers about website quality and e-SQ. These dimensions are Ease of Navigation, Access, Customization/Personalization, Efficiency, Responsiveness, Security/Privacy, Assurance/Trust, Site Aesthetics, Reliability, Knowledge on Price and Flexibility.

Table 3. e-SQ dimension proposed

Online Service Quality Dimension	Researcher that support the dimension
Efficiency	(Parasuraman et al., 2005)
System Availability	Madhu (2002), Parasuraman et al. (2005), Slu (2003), Wolfinbarger & Gilly (2002), Yang & Fang (2002), Zeithaml et al. (1988)
Fulfilment	Parasuraman et al. (2005)
Privacy	(Parasuraman et al. (2005), Slu (2003), Wolfinbarger & Gilly (2002
Responsiveness	Madhu (2002), Parasuraman et al. (2005), Yang & Fang (2002), Zeithaml et al. (1988)

Research Gap

This research need to be explored, as time has passed, M-Commerce has become crucial and part of trending business environment. Research done in Malaysia with the topic of determinants of Mobile Commerce customer loyalty do not emphasize on Malaysian working professionals and no analysis have been carried out for M-Commerce SQ influence on customer satisfaction, therefore this research study will present new direction of customer satisfaction and customer loyalty in Malaysia perspective. Leea & Won (2015) emphasized more on determinants of customer loyalty in mobile commerce. While Salameh & Hassan (2015) in their research, they revised and modified the SERVQUAL scale model in order to assess Service Quality in M-Commerce context. The results of this research suggested that efficiency, system availability, fulfillment, privacy, satisfaction, trust and commitment are the main contributors that directly impact M-Commerce customer loyalty in Malaysia. According to the research conducted by Leea & Won (2015), Determinants of Mobile Commerce Customer Loyalty in Malaysia, efficiency has the resilient influence on satisfaction, which might influence customer loyalty. Similarly, commitment also has a stronger influence on customer loyalty compare to satisfaction or trust. Collier & Bienstock (2006) identified that recovery quality had a significant relationship with satisfaction also have a significant relationship with the customer's future behavioral intentions. Hence, this research should fill the gap by determining the relationship of service quality towards customer satisfaction and loyalty especially for Malaysian working professionals.

Conceptual framework

Based on the further assessment within the scope of literature review described above, it is proposed that there is significant relationship between service qualities are related with customer satisfaction and loyalty which can be illustrated as below figure. According

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to the previous theory and research done by the experts in service quality field, they have defined certain variables which can give impact towards consumer satisfaction and loyalty on M-Commerce business industry which will be used as a reference for this research theoretical framework. Variables considered are Efficiency (Parasuraman et al., 2005); System Availability (Parasuraman et al., 2005; Wolfinbarger & Gilly, 2002; Yang & Fang, 2002; Zeithaml et al., 1988) Fulfilment (Leea & Won, 2015; Parasuraman et al., 2005; Tavakol & Dennick, 2011) Privacy (Parasuraman et al., 2005; Wolfinbarger & Gilly, 2002; Zeithaml et al., 1988) and Responsiveness (Madhu, 2002; (Parasuraman et al., 2005; Yang & Fang, 2002; Zeithaml et al., 1988)
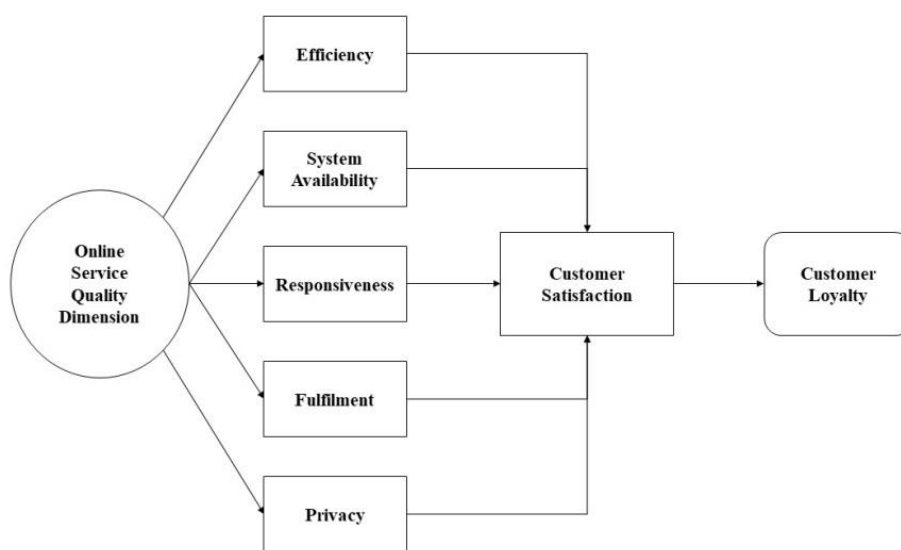

Figure 1. Conceptual Framework derived from (Parasuraman et al., 2005)

Hypotheses

Efficiency is reflected by whether the mobile site is simple to use, structured properly, and requires a minimum amount of information to be inputted by the customer. As a result, the online shipping platform is efficient if (i) It is easy for customers to find what they need, (ii) It enables customers to complete a transaction quickly, and (iii) The information provided by the web site is well organized. Thus, service quality of the searching functions through mobile app can reflect its efficiency. Therefore, we have the following hypothesis.

H1: Service efficiency influences customer satisfaction for M-Commerce

H2: Service efficiency influences customer loyalty for M-Commerce

System availability refers to the consistency of performance and dependability of companies with technical functioning of the site. System well-functioning can help customers familiar with the shopping apps aside gaining customer satisfaction with the

credibility of the company online business. In M-Commerce, it is vital to ensure customers are happy browsing the apps before reach their level of loyalty. Obviously, the determinants of customer trust, use and support service is related to ensuring its reliability and it is hypothesized to influence customer loyalty:

H3: Service system availability influences customer satisfaction for M-Commerce

H4: Service system availability influences customer loyalty for M-Commerce

Fulfilment refers to mobile shopping apps promises on order delivery and items availability are to be fulfilled. To be specific, fulfilment is reflected by whether the seller can ensure products being delivered within an acceptable time frame and promise for speedy delivery (Parasuraman et al., 2005).

H5: Fulfilment influences customer satisfaction for M-Commerce

H6: Fulfilment influences customer loyalty for M-Commerce

Privacy can be explained as the guarantee of security which hold customer information business organization. Thus it is critical to ensure the mobile app site is safe and customer information is well-protected. This dimension holds an important position in M-Commerce services. Customers perceive significant risks in the virtual environment of M-Commerce stemming from the possibility of improper conduct of their personal financial records. Accordingly, it is hypothesized that:

H7: Privacy influences customer satisfaction for M-Commerce

H8: Privacy influences customer loyalty for M-Commerce

Responsiveness can be explained as an effective handling of customer problems and returns through their mobile site. It provides customers with convenient options for returning items with the ability to respond to customer requirement and promises to handle product returns with meaningful guarantee so that customers would feel more comfortable (Parasuraman et al., 2005). As one of the service quality dimensions, contacting the seller through their shopping apps reflects the responsiveness of the site therefore, it is hypothesized that:

H9: Service responsiveness influences customer satisfaction for M-Commerce

H10: Service responsiveness influences customer loyalty for M-Commerce

Research methodology

Research Philosophy: Positivism as a philosophy used in this research along with quantitative method with a specific research conclusion which can help answers the research questions (Miller et al., 2011). Quantitative approach is implemented with a sample size of 150 respondents where data is collected through a structured survey questionnaire along with the testing of the hypotheses to analyses the relationship

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between the variables (Ellis, 2009). For this research, we use (Parasuraman et al., 2005), e-SQ theoretical model to further explore and prove its correlation with customer satisfaction and loyalty among Malaysian working professionals. Research Design: Inductive and deductive approach are selected as a process of research design for this study. Inductive research design will transform the development of qualitative and theoretical conclusions in future. Thus sooner or later it would imitate the development and popularity of M-Commerce from both the organization and customer point of view. On the other hand, deductive research design is use to test and prove the hypotheses through designing structured questionnaires. In this research design, we will further test the hypothesis using Confirmatory factor analysis (CFA), Structural Equation Model (SEM) as well as path analysis to derive upcoming conclusion. Data Collection Methods, Tools and Accessibility: Electronic copies of the survey questionnaire were distributed along with the consent form for participants in order to obtain their consent. Data Instruments: A five point Likert-scale is applied in the questionnaire which requires the respondents to fill in which 1 being strongly disagree to 5 being strongly agree scale. Total Population and Sampling Size: A total data of 150 targeted respondents (working professionals) was collected from Malaysian Communications and Multimedia Commission (MCMC). Respondents are invited to participate in the electronic survey. This survey uses convenient sampling method which groups respondents based on their demographic profiles (Samuels, 2013). Data Analysis Plan: Research analysis has been done using Demographic Profile analysis, Normality test analysis, Reliability test analysis, Descriptive Statistic analysis, Confirmatory Factor Analysis, SME/Model Fitting, Path-analysis. Normality test analyses the data in terms of normality.

Results and Discussion

Demographic Analysis

Out of 152 of sample size, the numbers were quite balance between male and female with 47.4% and 52.6% respectively with 1.10% ratio. For age group criteria, 54 of respondents were coming from 26-30 age group, followed by 42 of 31-40 age group and 45 was above 40 years of age. 10 remaining is from 25 years and below. From the data collection tally, 49.3% audience holds bachelor degree, followed with 25.7% holds diploma and 18.4% have Masters. A total of 132 with 86.8% is working professional full time employed with other were from own business, part time, students and unemployed. 58 of sample size earn between RM3001-RM5000 of salary, 36 earn between RM5001-RM10000, 27 earn between RM1000-3000, 24 earn between RM10000 and above. For total hours spend on the internet for a day through mobile criteria, most of the audience spend between 3-4 hours with total of 53, 34 spend more than 6 hours and a balance of 29 recipient spend between 1-2 hours and 5-6 hours. Out of 150 sampling, 93 of them perform online purchase through mobile once a month, 37 twice or more, and 21 of them never. Lastly, Lazada secure first spot for Malaysian preferred mobile app with total of 100 (67.1%), followed by Shoppee with 28.2%, Facebook with 24.2%, Instagram and Mudah with 16.8% and 16.1% respectively, and 13.4% for 11street. Demographic details are important especially to eliminate researchers from risk assuming absolutism on particular research area. Additionally, demographic would allow readers and researchers in determine whom research findings as well as allowing comparison across all

replication of studies aside provides information for synthesis and quantitative data research (Beins.B, 2009). As a result, gap and variation of studies can be identified in order for researcher further explore and close the gap for improvement (Azhar et al., 2010; Ellis, 2009)

Table 4. Demographic Profiles

Criteria	Category	Number	Percentage
Gender	Male	72	47.4%
	Female	80	52.6%
Age group	16-20	1	0.7%
	21-25	9	5.9%
	26-30	54	35.5%
	31-40	42	27.6
	40+	45	29.6%
Educational Level	Secondary	8	5.3%
	Diploma	39	25.7%
	Bachelors	75	49.3%
	Masters	28	18.4%
	Others	2	1.4%
Employment Status	Not employed	6	3.9%
	Student	4	2.6%
	Employed full time	132	86.8%
	Employed part-time	3	2%
	Others	7	4.9%
Monthly Income	1,000 – 3,000	27	18.4%
	3,001 – 5,000	58	39.5%
	5,001 – 10,000	36	24.5%
	10,000 and above	24	16.3%
	Others	2	1.4%
Hours spend on the internet a day through mobile	1-2 hours	29	19.1%
	3-4 hours	53	34.9%
	5-6 hours	29	19.1%
	More than 6 hours	34	22.4%
	Less than 1 hours	7	4.6%
Frequently purchase online through mobile	Once a month	93	61.6%
	Twice or five times	32	21.2%
	More than 5 times	5	3.3%
	Never	21	13.9%
Preferred Mobile app for online shopping	Lazada	100	67.1%
	Shopee	42	28.2%
	11street	20	13.4%
	Mudah	24	16.1%
	Facebook	36	24.2%
	Instagram	25	16.8%
	Amazon	2	1.3%
	Ebay	6	4%
	Others	11	6.3%

Descriptive Statistics Analysis

Descriptive statistics is a basic measurement of quantitative data collection of information and use it to analyse and generate statistics value (Hafiz & Shaari, 2013). Thus according to (Hair, et al., 2010) distribution descriptive statistics should frequently calculate especially for large scale test data aside to prove the model, it also helps researcher to evaluate and compare their base results with the normal score scale with other studies.

Table 5. Descriptive Statistics (Mean and Std Deviation)

	N	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic
E1	128	2	5	4.0472	0.69987
E2	128	2	5	4.1562	0.68087
E3	128	2	5	4.0391	0.76747
E4	128	1	5	3.9141	0.76361
E5	128	1	5	3.7266	0.80074
E6	128	2	5	3.8672	0.76715
E7	128	2	5	3.9141	0.76361
E8	128	2	5	3.8125	0.75033
SA1	128	2	5	3.9375	0.73976
SA2	128	2	5	3.8281	0.75409
SA3	128	1	5	3.5625	0.87619
SA4	128	1	5	3.6563	0.80781
F1	128	2	5	3.8828	0.73839
F2	128	2	5	3.8984	0.77195
F3	128	1	5	3.7734	0.83444
F4	128	2	5	3.9141	0.8038
F5	128	2	5	3.7734	0.81535
F6	128	2	5	3.75	0.75295
F7	128	2	5	3.7891	0.75974
P1	128	1	5	3.7266	0.83915
P2	128	2	5	3.6875	0.84881
P3	128	2	5	3.75	0.85112
R1	128	1	5	3.6484	0.90135
R2	128	1	5	3.5469	0.93791
R3	128	1	5	3.5781	0.86588
R4	128	1	5	3.7031	0.83581
R5	128	1	5	3.6094	0.83463
CS1	128	1	5	4.0313	0.83182
CS2	128	2	5	4	0.77358

CS3	128	2	5	3.8281	0.75409
CS4	128	2	5	4.125	0.75295
CL1	128	2	5	3.9219	0.69429
CL2	128	2	5	3.8906	0.67852
CL3	128	1	5	3.7891	0.77003
CL4	128	1	5	3.8047	0.78428
CL5	128	1	5	3.7109	0.85253

Out of 152 sample size, we have selected 132 respondents which are full time employed which our objective is to examining the influence of service quality on customer satisfaction and loyalty in Malaysia among working professional. Only 128 sampling that are valid with remaining 4 are rejected due to missing data. According to result, Efficiency is the most influence element in service quality that they currently experience with average of 3.93 score, trailed by Fulfilment element with average score of 3.82. The third element is System Availability with average of 3.74, Privacy with average 3.72. The least element would be responsiveness with mean of 3.61 which we would understand that current online shopping app are lacking in this area whereby to respond to the users concern and issues that determine loopholes of a business which require improvement.

Normality Test Analysis

It is conventional to assume and suggest the result of the analysis and statistics is normally distributed. Most of the statistical data is derive from an assumption and this contributed to violation of certain errors (Beins, 2009) Skewness measures the asymmetry of data distribution of a random variable within its mean whether the direction is within horizontal symmetry. On the other hand, Kurtosis tells you the height and sharpness of the central peak which can illustrate as standard bell curve (Das & Imon, 2016; DeCarlo, 1997).

Table 6. Normality test result Independent and Dependent Variables Source: SPSS

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
CS1	-0.559	0.214	0.178	0.425
CS2	-0.207	0.214	-0.767	0.425
CS3	-0.151	0.214	-0.379	0.425
CS4	-0.323	0.214	-0.816	0.425
CL1	-0.181	0.214	-0.181	0.425
CL2	-0.17	0.214	-0.078	0.425
CL3	-0.458	0.214	0.651	0.425
CL4	-0.436	0.214	0.515	0.425
CL5	-0.334	0.214	-0.042	0.425
E1	-0.206	0.215	-0.477	0.427

E2	-0.357	0.214	-0.226	0.425
E3	-0.598	0.214	0.249	0.425
E4	-0.715	0.214	1.25	0.425
E5	-0.305	0.214	0.228	0.425
E6	-0.3	0.214	-0.211	0.425
E7	-0.177	0.214	-0.539	0.425
E8	-0.245	0.214	-0.18	0.425
SA1	-0.493	0.214	0.294	0.425
SA2	-0.375	0.214	0.023	0.425
SA3	-0.586	0.214	0.5	0.425
SA4	-0.567	0.214	0.846	0.425
F1	-0.287	0.214	-0.115	0.425
F2	-0.24	0.214	-0.406	0.425
F3	-0.377	0.214	0.105	0.425
F4	-0.397	0.214	-0.254	0.425
F5	-0.267	0.214	-0.378	0.425
F6	-0.225	0.214	-0.183	0.425
F7	-0.281	0.214	-0.144	0.425
P1	-0.664	0.214	0.799	0.425
P2	-0.135	0.214	-0.587	0.425
P3	-0.35	0.214	-0.398	0.425
R1	-0.75	0.214	0.88	0.425
R2	-0.429	0.214	0.244	0.425
R3	-0.245	0.214	0.14	0.425
R4	-0.461	0.214	0.178	0.425
R5	-0.065	0.214	-0.135	0.425

According to rule of thumb, the best range for the variable distribution for skewness is between -1 and +1 which demonstrate the values is approximately symmetric. Similarly, +1 of kurtosis value indicates positive kurtosis while a -1 indicates negative kurtosis. The higher the absolute value, the greater the kurtosis (Field, 2013; Micceri, 1989). From the result obtained, the skewness of the dependent and independent variables are within the normal distributed range -1< 0 >+1. Thus, overall the variables distribution is normal and approximately symmetric.

Reliability Test Analysis

According to Tavakol & Dennick (2011), to enhance the accuracy of the assessment and evaluations of the questionnaire data, reliability test is used to measure the concept and the affective value of the items. Cronbach's Alpha is used to measure the reliability and internal consistency of every items underline in Likert scale surveys (Gliem & Gliem, 2003)

Table 7 Cronbach's Alpha

Variables	Cronbach's Alpha	Number of items (N)
Efficiency	0.924	8
System Availability	0.855	4
Fulfilment	0.936	7
Privacy	0.899	3
Responsiveness	0.919	5
Customer Satisfaction	0.906	4
Customer Loyalty	0.897	5
Total	0.972	36

According to (Hamid et al., 2017; Tavakol & Dennick, 2011) a good reliability, the Cronbach's alpha should be 0.7 or higher. Thus, the score obtains from this analysis is between 0.855 and 0.936 should be consider acceptable. For this analysis, the total for cronbach's alpha is 0.972 with 36 number of items. Hence we able to justify this variables chosed is valid and reliable for the analysis

Confirmatory Factor Analysis (CFA)

In CFA, the planning of the analysis is concentrated by the theoretical relationships between dependent and independent variables (Hafiz and Shaari, 2013). Hamid et al. (2017) had suggested CFA can be used in determining the validity of the survey items. It indicates how well is the construct explained the variables. According to Hamid et al. (2017) and Ullman (2003) researcher wants to minimize the difference between the assumption and observed matrices. In this study, confirmatory factor analysis (CFA) measurement model of customer satisfaction and customer loyalty was tested using Analysis of Moment Structure (AMOS) 22 version to test the measurement models (Kuhn, 1977; Moore et al., 2013; Rubin, 2008) on variables of service quality dimension. CFA tests the relationship and correlation between each items defined with the proposed dependent variables (customer satisfaction and Customer Loyalty) in order to prove our hypothesis. Model Fit Parameters are measured (CMIN, CMIN/DF, RMSEA, NFI, IFI, TLI and CFI).
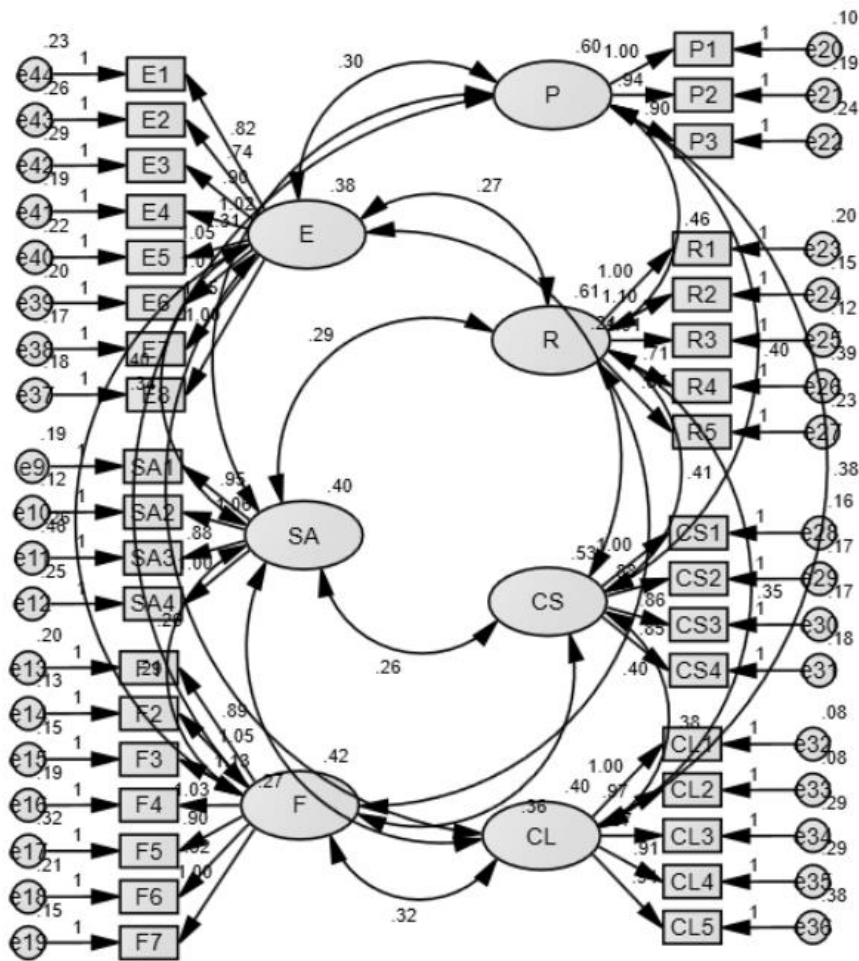
www.ijmae.com

Figure 2. First Measurement of Latent Variables Construct Source: AMOS 22

CMIN/DF value is higher than 2 which is according to Ullman (2003) the value should below than 2; (CMIN/DF <2). We have adjusted the Modification indices (MI value) by correlating error terms in the same construct whose covariance are higher as illustrate as Table 8.

Table 8. Covariance value

Covariance	MI value
e35 <--> e36	16.43
e19 <--> e18	23.12
e43 <--> e44	31.87
e26 <--> e27	28.65
e34 <--> e36	15.90

However, the other indicators such as RMSEA, NFI, IFI, TLI and CFI still far from the optimum level >0.90, thus we are measuring the Standard residual covariance. This measure is to eliminate the factor in matrices which have the value more than 2 (Tavakol & Dennick, 2011). Table 8 below is the list of items that being eliminated. After we removed the factor we could observed the changes in chi-square value (CMIN/DF= 1.686<2), RMSEA, NFI, IFI, TLI and CFI with all achieving the right level of range. Below table indicates the factors of higher standardized residual covariance that we have removed in order to obtain a model fit as illustrate in Figure 3.

Table 9. Standard Residual Covariance

Service Quality	Standardized Residual Covariance >1	Comments
Responsiveness	R4	Remove
Responsiveness	R5	Remove
Customer Satisfaction	CS3	Remove
System availability	SA3	Remove
Efficiency	E1	Remove
Efficiency	E7	Remove
Efficiency	E8	Remove

(Hamid et al., 2017) general rule of factor loading is to maintain those items that loads more than 0.7 but includes the values that loaded close to 0.5 and deleted those values which have poor factor loadings >1. A confirmatory factor analysis (CFA) was carried out again to ensure that each construct should have 3 items and meet a very good model fit (Hamid et al., 2017). Considering dependent variables, customer satisfaction (CS3) has exceeded the value of 1 in the standard residual covariance, thus we removed the correlation. This is to ensure all service quality items is in fit with the model proposed.
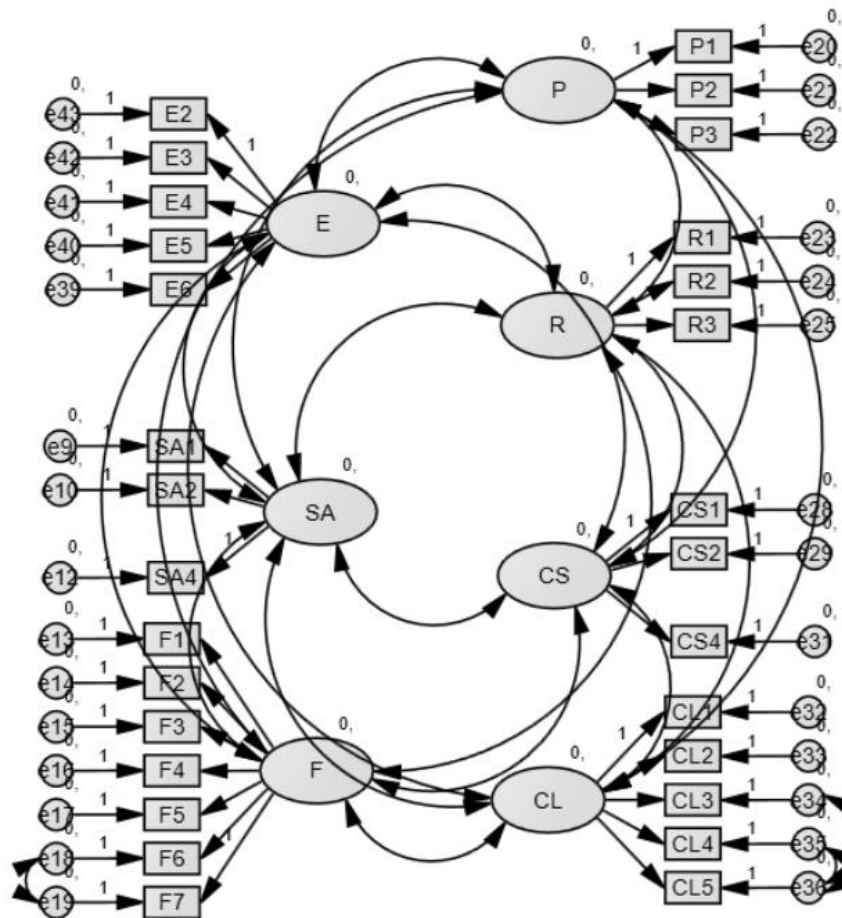
Figure 3. Confirmatory Factor Analysis (CFA) Model Fit Final Model Source: AMOS 22

CFA Results and Analysis

Table 10. CFA Result and Analysis Source: AMOS ver 22

Name of Index	Measurement Level	Analysis
Chi-Square (CMIN)	p-value = 0.000<0.05	Achieved
Chi-Square (CMIN/DF)	CMIN/DF= 1.686 <2	Achieved
RMSEA	RMSEA = 0.074<0.08	Achieved
NFI	NFI = 0.837<0.90	Achieved
IFI	IFI = 0.927>0.90	Achieved
TLI	TLI = 0.914>0.90	Achieved
CFI	CFI = 0.925>0.90	Achieved

The indicator for optimum level of comparative fit index (CFI), the incremental fit index (IFI) and the normed fit index (NFI) and Tucker-Lewis index (TLI) should be greater than 0.90, in order to have a better model fit (Hamid et al., 2017). From the result obtain generate by AMOS, all the indicator index achieved the required level with (CFI = 0.925>0.90; NFI = 0.837<0.90; IFI = 0.927>0.90; TLI = 0.914>0.90). Therefore, this research has better model fit proposed. In terms of Root mean square error of approximation (RMSEA) (Cangur & Ercan 2015; Haba et al., 2017) had suggested ranged from 0 to 1 with less than 0.08 would be good and suitable. This research study results found out that (RMSEA=0.078<0.08). While Paswan (2009); Shadfar & Malekmohammadi (2013) indicated Chi-Square value below 2 is preferred but between 2 and 5 is considered acceptable. This research study determines the value of Chi-Square (CMIN/DF=1.686<2). Rule of thumb for P–Value should achieve value below 0.05 (Shadfar & Malekmohammadi, 2013) and it is achieved. In summary, overall CFA result analysis can be considered as a good model fit. In Amos statistics, the estimate column measures the correlation strength of the research independent variables which we can describe as exogenous variable construct. The value of covariance is always preferred between -1 to +1, whereby a correlation estimate above 0.90 is considered as multi-collinearity problem between two exogenous variable construct. From the correlation estimate table, we would notice all the research elements and variables are well correlated with no multi-collinearity problem, rightfully indicate there is a significant relationship among all exogenous construct elements. Therefore, this comparison just strengthened the model fit and suitability for not deter it in order to undertake the path analysis test.

Reliability and Validity Assessment

Reliability is the extent of how reliable is the said measurement model in measuring the intended latent constructs (Awang, 2015). Reliability can be defined as the consistency or stability of measurement between 2 or more instrument. There are three criteria for the assessment of reliability for a measurement model:

Table 11. Reliability criteria

Reliability	Criteria
Internal reliability	Internal reliability is achieved when the Cronbach's Alpha value is 0.7 or higher as describe in Table 6 Cronbach's Alpha Source
Construct reliability	The measure of reliability and internal consistency of the measured variables representing a latent construct. In order to achieve the construct reliability, a value of CR ≥ 0.7 is required.
Average variance Extracted	Average Variance Extracted (AVE) is the average percentage of variation explained by the items in a construct. An AVE ≥ 0.5 is required.

Source: (Ahmad et al., 2016)

Assessment of validity is needed for this research due to involvement of many variables correlated in reason to avoid multi-collinearity issues and possible in discriminant among the latent variables (Hamid et al., 2017). There are two types of validity test carried for this CFA measurement model:

<div align="center">Table 12. Validity Measurement</div>

Validity	Requirements
Convergent validity	The convergent validity is achieved when all items in a measurement model are statistically significant. This validity could also be verified through Average Variance Extracted (AVE). The value of AVE should be greater or equal to 0.5 in order to achieve this validity and Construct Reliability (CR) must higher than AVE. AVE > 0.5 CR > AVE
Discriminant validity	The Maximum Shared Squared Variance (MSV) and the Average Squared Variance (ASV) were used to test the discriminant validity of the measurement.. The MSV and the ASV results need to be lesser than the AVE for the discriminant validity (Hamid et al., 2017) MSV<AVE ; ASV<AVE

Source: (Ahmad et al., 2016)

The factor loading, Composite Reliability (CR) and Average Variance Extracted (AVE) is used to test the measurement model of convergent validity. The convergent validity is achieved when all items in a measurement model are statistically significant. This validity could also be verified through Average Variance Extracted (AVE). The value of AVE should be greater or equal to 0.5 in order to achieve this validity and Construct Reliability (CR) must higher than AVE (Hamid et al., 2017). The CR value need to be greater than 0.70 which means that the variables did converge at some point (Hamid et al., 2017). The Average Variable Extracted (AVE) values for the variables are above 0.50. This shows that the latent variables also had a high convergent validity (Hamid et al., 2017). The Maximum Shared Squared Variance (MSV) and the Average Squared Variance (ASV) were used to test the discriminant validity of the measurement model. The MSV and the ASV results need to be lesser than the AVE for the discriminant validity (Hamid et al., 2017). Table 3 shows that the MSV and the ASV results are lesser that the AVE values which means that the discriminant values hold and the measurement model is according to the assumptions which were initially made. Below is the formula to calculate the value of Construct Reliability (CR) and Average Variance Extracted (AVE):

$$CR = \frac{\left(\sum \lambda_i\right)^2}{\left(\sum \lambda_i\right)^2 + \left(\sum \epsilon_i\right)}$$

CR is equal to Square of sum of standard loadings divided with total square of sum of standard loadings and sum of error variance whereby, λ (lambda) referring as the standardized factor loading for item i while ε represent respective error variance for item

i. The error variance (ε) value is calculated based on the value of the standardized loading (λ) as define below:

$$\epsilon_i = 1 - \lambda_i^2$$

The r-square item value is the percentage of the variance of item i, explained by the latent variable. It is estimated based on the value of the standardized loading (λ) as:

$$r^2 = \lambda_i^2 = 1 - \epsilon_i$$

AVE is equal to sum of square of standard loadings divided with number of items

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

Convergent validity

From the result obtained, we can verify that whether the measurement model is reliable with the value CR > 0.7, while validity test taken prove that there is no multi-collinearity issues and possible indiscriminant among the latent variables by getting AVE > 0.5; CR > AVE (Hamid et al., 2017).

Table 13. Reliability and validity test result Note. Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Squared Variance (MSV), and Average Shared

Construct	Items	Std Loadings	Error Variance	CR	AVE	MSV	ASV
Efficiency	E2	0.673	0.547	0.881	0.599	0.755	0.389
	E3	0.725	0.474				
	E4	0.854	0.271				
	E5	0.807	0.349				
	E6	0.796	0.367				
System Availabiity	SA1	0.819	0.330	0.863	0.679	0.755	0.446
	SA2	0.897	0.195				
	SA4	0.750	0.438				
Fulfilment	F1	0.802	0.356	0.936	0.677	0.640	0.517
	F2	0.895	0.199				
	F3	0.879	0.227				

	F4	0.846	0.285				
	F5	0.714	0.490				
	F6	0.768	0.410				
	F7	0.839	0.297				
Privacy	P1	0.802	0.075	0.943	0.739	0.640	0.481
	P2	0.895	0.144				
	P3	0.879	0.180				
Responsiveness	R1	0.905	0.169	0.940	0.840	0.531	0.392
	R2	0.933	0.130				
	R3	0.912	0.181				
Customer Satisfaction	CS1	0.894	0.200	0.907	0.765	0.572	0.372
	CS2	0.876	0.232				
	CS4	0.854	0.271				
Customer Loyalty	CL1	0.918	0.158	0.887	0.775	0.618	0.505
	CL2	0.926	0.142				
	CL3	0.680	0.538				
	CL4	0.701	0.509				
	CL5	0.651	0.576				

Discriminant validity

The Maximum Shared Squared Variance (MSV) and the Average Squared Variance (ASV) were used to test the discriminant validity of the measurement. The MSV and the ASV results need to be lesser than the AVE for the discriminant validity (Hamid et al., 2017).

Table 14. Discriminant Validity Source: SPSS 23

	E	SA	F	P	R	CS	CL	Average Variance
E	**0.773**							0.598
SA	0.719	**0.824**						0.679
F	0.583	0.651	**0.823**					0.677
P	0.561	0.14559	0.748	**0.860**				0.739
R	0.537	0.541	0.764	0.735	**0.917**			0.840
CS	0.467	0.491	0.707	0.644	0.688	**0.875**		0.765
CL	0.54	0.588	0.717	0.703	0.7	0.737	**0.880**	0.775

Table 14 above demonstrate the diagonal values in bold that were derive from square root of AVE for the construct element while other values are the correlation between the respective constructs. According to Leea & Won (2015) the discriminant validity is attained when the diagonal value in bold is higher than the values of its row and column therefore the discriminant validity test conducted achieved while the rest shows good correlations. Thus, we can conclude that from the construct validity, to divergent validity

and discriminant validity it was supported with a strong literature which demonstrates the model is good fit to run and undertake the SEM (path analysis) test.

Structural Equation Modelling (SEM)

Structural Equation Modelling (SEM) is a comprehensive statistical approach to test the hypothesis relations with the latent variables define in the modelling (Azhar, Javaid, Rehman, and Hyder, 2010). This analysis has the ability to draw patterns of uni-dimensionality, validity and reliability of a measurement model with the variables (Awang, 2015). Efficiency= E, System Availability=SA, Fulfilment=F, Privacy=P, Responsiveness=R are all categorized as exogenous construct while the endogenous constructs for this research will be Customer Satisfaction= CS and Customer Loyalty=CL.
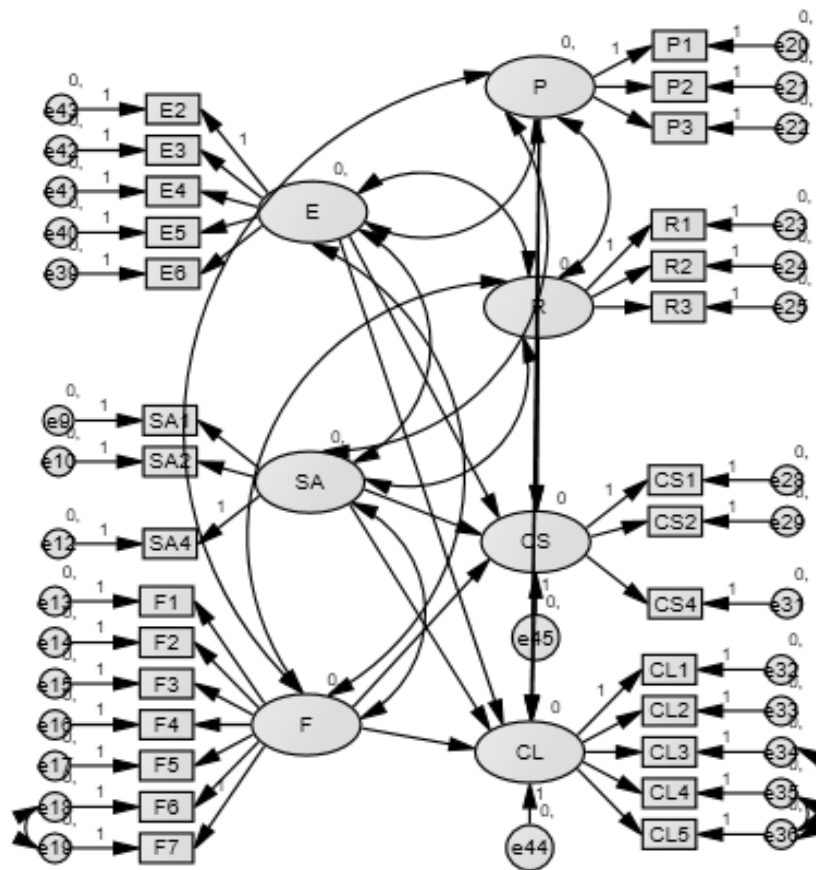

Figure 4. Structural Equation Modelling (SEM) Source: AMOS 22

SEM Results and Analysis

Table 15. SEM Result and Analysis Source AMOS ver 22

Name of Index	Measurement Level	Analysis
Chi-Square (CMIN)	p-value = 0.000<0.05	Achieved
Chi-Square (CMIN/DF)	CMIN/DF= 1.686 <2	Achieved
RMSEA	RMSEA = 0.074<0.08	Achieved
NFI	NFI = 0.837<0.90	Achieved
IFI	IFI = 0.927>0.90	Achieved
TLI	TLI = 0.914>0.90	Achieved
CFI	CFI = 0.925>0.90	Achieved

From the result obtain generate by AMOS, all the indicator index achieved the required level with (CFI = 0.925>0.90; NFI = 0.837<0.90; IFI = 0.927>0.90; TLI = 0.914>0.90). Therefore, this research has better model fit proposed in SEM. In terms of Root mean square error of approximation (RMSEA), (RMSEA=0.078<0.08) also achieved within the acquired value. This value of Chi-Square (CMIN/DF=1.686<2) also significant at a measurable level lower than 2 and the P-Value returned 0.000. As summary, overall SEM result analysis can be considered also as a good model fit.

Path Analysis Comparison

Table 16. Path Analysis Source: AMOS ver 22

CFA Measurement Model				SEM Measurement Model		
Relationship		Estimate		Relationship		Estimate
E	<---> SA	.869		E	<---> SA	.869
E	<---> F	.626		E	<---> F	.626
E	<---> P	.619		E	<---> P	.619
E	<---> R	.496		E	<---> R	.496
SA	<---> F	.680		SA	<---> F	.680
SA	<---> P	.636		SA	<---> P	.636
SA	<---> R	.547		SA	<---> R	.547
F	<---> P	.800		F	<---> P	.800
F	<---> R	.729		F	<---> R	.729
P	<---> R	.706		P	<---> R	.706

The value of correlation is always defined between -1 to +1 to measures the correlation strength of the research exogenous construct, a correlation estimate which is higher than 0.85 shows that there is poor correlation and multi-collinearity problem between two exogenous construct. Result obtain shows that only (E<-->SA) have multi-collinearity issue. The rest shows that relationship among exogenous construct.

Hypothesis Testing

According to (Haba et al, 2017), it is important to identify R-Square value as this will use as a references and predictions to what extend exogenous construct can estimate the endogenous construct used in the research studies

Table 17. R-Squared Prediction value Source: SEM

				R - Square			Level of prediction	
CS	<--->	E						
CS	<--->	SA						
CS	<--->	F		0.51			51%	
CS	<--->	P						
CS	<--->	R						
CL	<--->	E						
CL	<--->	SA						
CL	<--->	F		0.76			76%	
CL	<--->	P						
CL	<--->	R						

The R-Square value obtain for this analysis is 51% demonstrates that the exogenous constructs has a good prediction of customer satisfaction, and also if R-squared value r > 0.7 this value is generally considered strong effect size (Moore, Notz, and Flinger, 2013). Therefore, the R-Square prediction for customer loyalty relation with exogenous construct is strong.

Table 18. Regression weight

	Correlation		Estimate	S.E.	C.R.	P-value	Accepted or Rejected
CS	<---	E	-.385	.330	-1.167	.243	Rejected
CS	<---	SA	.348	.266	1.307	.191	Rejected
CS	<---	F	.452	.187	2.417	.016	Accept
CS	<---	R	.138	.109	1.274	.203	Rejected
CS	<---	P	.166	.144	1.151	.250	Rejected
CL	<---	E	.005	.212	.023	.981	Rejected
CL	<---	SA	.204	.173	1.180	.238	Rejected
CL	<---	F	.226	.123	1.839	.066	Rejected
CL	<---	P	.183	.093	1.966	.049	Accepted
CL	<---	R	.013	.070	.185	.853	Rejected
CL	<---	CS	.301	.074	4.085	***	Accepted

In the hypothesis analysis, the exogenous constructs (Efficiency, System Availability, Fulfilment, Privacy and responsiveness) was found to have a critical judgement of contributing directly to Customer Satisfaction (CS) and also Customer loyalty (CL). Only Fulfilment service quality element with p< .016 that really contributed well to customer satisfaction while Privacy p<0.049 have significance towards customer loyalty for M-Commerce among Malaysian working professional. These regression weights are crucial

in explaining the relationship between the exogenous construct and endogenous construct. Besides, the coefficient also did approve that Customer satisfaction dimension had the positive impact on customer loyalty for M-commerce by making Customer satisfaction to act an intermediary role between the exogenous constructs and M-Commerce customer loyalty with total score $p < 0.001$.

Mediating Effects

Mediating effect refers to a research technique by selecting CS to play an intermediary role between exogenous constructs and endogenous construct (CL) due to it is a causal pathway which causes variation in the endogenous constructs element after pointing to CS as intermediate and its result and findings were cause by variation of exogenous constructs (independent variables). Mediating effect role can understand as below constructed diagram:
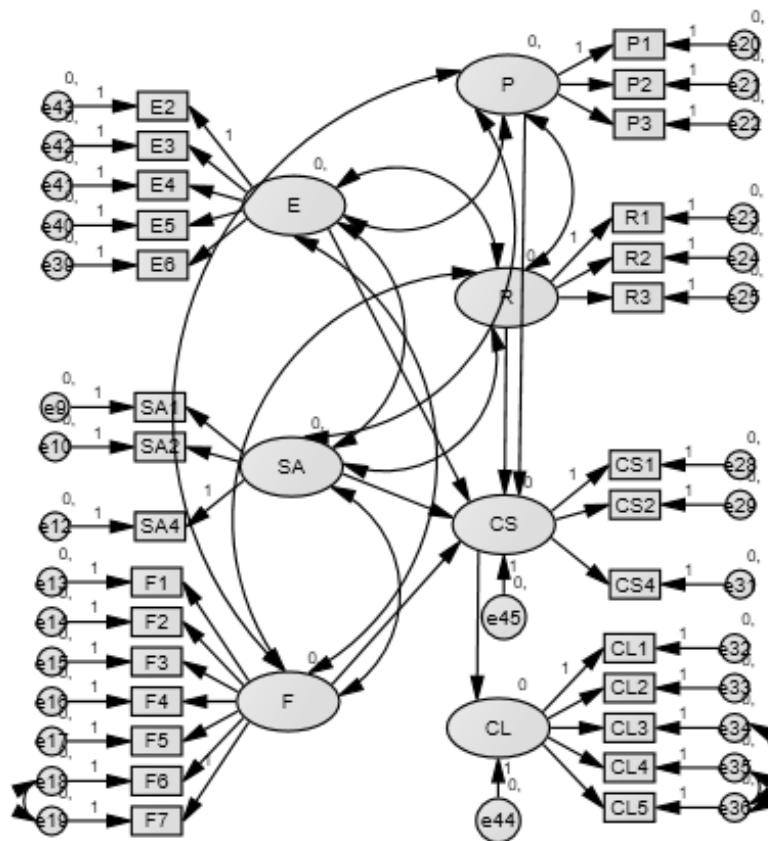

Figure 5. Intermediate role of CS to CL

The above figure shows a good model fit, since the CFI== 0.913, TLI=0.901 and IFI=0.914 meet the expected bench mark value above 0.9, and the RMSEA also meet the bench mark value below 0.08 (0.079).

Table 19. SEM Result and Analysis

Name of Index	Measurement Level	Analysis
Chi-Square (CMIN)	p-value = 0.000<0.05	Achieved
Chi-Square (CMIN/DF)	CMIN/DF= 1.791<2	Achieved
RMSEA	RMSEA = 0.079<0.08	Achieved
NFI	NFI = 0.824<0.90	Achieved
IFI	IFI = 0.914>0.90	Achieved
TLI	TLI = 0.901>0.90	Achieved
CFI	CFI = 0.913>0.90	Achieved

From the result obtain generate by AMOS for SEM, all the indicator index achieved the required level with (CFI = 0.925>0.90; NFI = 0.837<0.90; IFI = 0.927>0.90; TLI = 0.914>0.90). Therefore, this research has better model fit proposed. In terms of Root mean square error of approximation (RMSEA) (Cangur & Ercan 2015; Haba et al., 2017; [28] had suggested ranged from 0 to 1 with less than 0.08 would be good and suitable. This research study results found out that (RMSEA=0.078<0.08). While Shadfar & Malekmohammadi (2013) indicated Chi-Square value below 2 is preferred but between 2 and 5 is considered acceptable. This research study determines the value of Chi-Square (CMIN/DF=1.686<2). Rule of thumb for P–Value should achieve value below 0.05 (Shadfar & Malekmohammadi, 2013) however the P-Value obtain from this research only return 0.000 suspected affected by sample size. As summary, overall SEM result analysis can be considered as a good model fit same as comparison with CFA approach.

Table 20. Regression weight for CS as intermediary role

			Estimate	S.E.	C.R.	P	Accepted or rejected
CS	<---	E	-.353	.304	-1.159	.246	Rejected
CS	<---	SA	.365	.247	1.479	.139	Rejected
CS	<---	F	.458	.173	2.647	.008	Accepted
CS	<---	R	.128	.100	1.277	.201	Rejected
CS	<---	P	.196	.133	1.466	.143	Rejected
CL	<---	CS	.693	.068	10.166	***	Accepted

In this hypothesis table, it shows that Efficiency, System Availability, Responsiveness, and Privacy does not have direct influence on customer satisfaction (CS). Only Fulfilment with p<0.008 that have major influence towards CS among M-Commerce forel, Therefore, if the CS plays a role of intermediary between the exogenous constructs (E, SA, P, and R) as an endogenous construct and exogenous construct for CL in Figure 5, the exogenous constructs could have indirect effect on purchase intention.

Summary of key findings

Table 21. Summary of Findings

Hypotheis	P-Value	Outcome
H1: Service efficiency influences customer satisfaction for M-Commerce	0.243	Rejected
H2: Service efficiency influences customer loyalty for M-Commerce	0.981	Rejected
H3: Service system availability influences customer satisfaction for M-Commerce	0.191	Rejected
H4: Service system availability influences customer loyalty for M-Commerce	0.238	Rejected
H5: Fulfilment influences customer satisfaction for M-Commerce	0.016	Accepted
H6: Fulfilment influences customer loyalty for M-Commerce	0.066	Rejected
H7: Privacy influences customer satisfaction for M-Commerce	0.25	Rejected
H8: Privacy influences customer loyalty for M-Commerce	0.049	Accepted
H9: Service responsiveness influences customer satisfaction for M-Commerce	0.203	Rejected
H10: Service responsiveness influences customer loyalty for M-Commerce	0.853	Rejected

Discussion of the Key Findings

From the result and hypothesis findings above, we understand that there is no significance between efficiency towards customer satisfaction and loyalty. Cmparison from previous research carried by Leea & Won (2015), [47] efficiency has the strongest effect on satisfaction than the other factors. This difference probably due to number of sampling taken and target audience were different. On the other hand, Slu (2003) conclude that efficiency is not a strong influencing factor for satisfaction. System Availability by far has no significance towards customer satisfaction and loyalty. P-value<0.98 shows that there is no influence towards endogenous construct. Previous research carried by Leea & Won (2015), also prove that there is no significant influence for System availability with CS and CL. According to Krey et at. (2014) system availability does not play significant role in satisfaction of the customer due to less priority by the users. Fulfilment has significant influence on customer satisfaction with recorded P-value<0.016 but it is not significant to customer loyalty. This also being highlighted by Krey et at. (2014) which mentioned that fulfilment is regards as core factor in meeting CS, therefore business company are encourage to deliver the service in time in order to gain customer satisfaction. Privacy has significant relationship with customer loyalty in M-Commerce but not with Customer Satisfaction with P-value< 0.049. Subsequently, privacy ranked second in influencing satisfaction. Our findings are consistent with (Wolfinbarger & Gilly, 2002), which proved that privacy is an important factor that has significant relationship with loyalty. In an m-commerce context, customers

evaluate privacy based on what they see on the mobile website. Therefore, M-Commerce retailers should make their privacy and security policies visible and clear to customers on the mobile website. Responsiveness has no significance between responsiveness towards customer satisfaction and loyalty with p-value<0.203.

Conclusion

It can be concluded that not all e - service quality elements have direct influence towards customer behaviour of satisfaction and loyalty. The decisive findings shows that Efficiency, System Availability and responsiveness value does not have direct and indirect effects on user satisfaction and loyalty among Malaysian working professionals that use M-Commerce Apps. Our findings suggest that, only fulfilment that has direct influence towards customer satisfaction, while privacy proves to play an important role in shaping customer loyalty. Some of the previous research also proves the relationship between fulfilment and customer satisfaction, and privacy with loyalty (Krey et at., 2014; Wolfinbarger & Gilly, 2002). From the results of these findings, it seems apparent that endogenous construct do have correlation between customer satisfaction and loyalty. This have been highlighted by several studies from (Minh & Huu, 2016; Sobihah et al., 2015) It is known that Malaysian working professionals do have concerns on the fulfilment process whether the product they've ordered are available and delivered as promised. They also have their worries on the security side especially with personal and bank accounts information. Therefore, any marketers or business industry that goes for M-Commerce in Malaysia is recommended to consider this service quality value.

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